Castilleja

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Line Creek Plateau Research Natural Area

By Steve Shelly, USFS Northern Region

(Editor's note: The following article is excerpted in part from Kelseya, the newsletter of the Montana Native Plant Society)

On June 29, 2000, the Regional Foresters of the Rocky Mountain Region and Northern Region of the U.S. Forest Service signed a landmark decision -- they designated the Line Creek Plateau Research Natural Area (RNA). The decision was appealed, but affirmed earlier this year. Ecologists and managers on the Shoshone and Custer National Forests deserve tremendous credit for their work toward securing this important designation.

Line Creek Plateau RNA lies in the Beartooth Mountains, straddling the Montana-Wyoming line and two national forest boundaries. It includes the Twin Lakes area. Its spectacular array of alpine and montane plant communities protect at least 17 plant community "targets" and a total of 24 rare vascular plant species including several like Ice grass known nowhere else in Wyoming (Fertig and Bynum 1994; see *Castilleja* 20(1):6-7).

Ice grass (*Phippsia algida*) is an alpine annual and only known in the state from the Beartooth Mountains. (From Britton, N.L., and A. Brown. 1913. *Illustrated flora of the northern states and Canada*. Vol. 1: 193. Posted at: http://plants.usda.gov/; see p. 6).

It has the distinction of being the largest U.S. Forest Service RNA, spanning 22,422 acres (3,053 acres in Wyoming). Nationally, the Forest Service has designated approximately 450 RNAs, including 7 others in Wyoming.

The next time you travel over the Beartooth Highway, crossing the Line Creek Plateau RNA, you can enjoy the incredible alpine scenery and know it is included in the network of federal natural areas. Information about the Line Creek Plateau and other Forest Service RNA's in the state and the Rockies are posted electronically: http://nhp.nris.state.mt.us/rna/

Literature cited

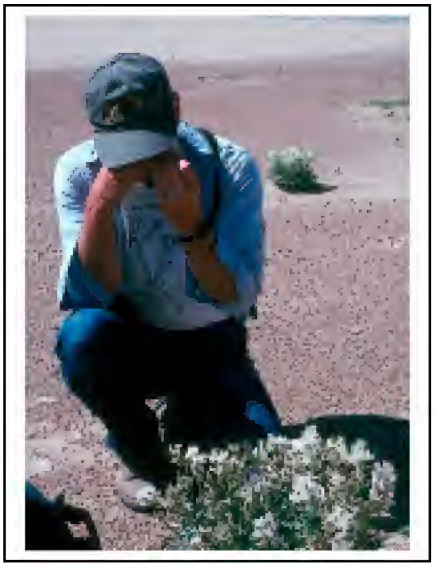
Fertig, W. and M. Bynum. Biological report on the proposed Twin Lakes RNA. Report to Shoshone Natl. Forest. WYNDD.

WNPS NEWS –

WNPS Membership Renewals Moved to WINTER

Membership renewals and election balloting will now follow the calendar year, in a Board decision made at the time of the Annual Meeting. This change will move the annual renewal and voting tasks out of the spring and summer months when WNPS members are hardest to reach, and new Boards are hardest to coordinate. It also puts us in line with By-laws that set the fiscal year as January 1 – December 31. Membership dues for 2004 will officially come due on January 1, but there is a grace period up until the time of the annual summer meeting so no members are short-changed. Check on the mailing label of this newsletter for the year of membership expiration – there are many people who *already* paid 2004 dues! The December issue will include the 2004 ballot and renewal form.

...Where in the state would YOU like to explore? The December issue will include a survey and highlight of past WNPS fieldtrip destinations to chart next year's fieldtrip.



Jim Glennon, Board member, strikes a botanist pose over *Oxytropis sericea* at Killpecker Dunes. See next page.

Scholarship Announcement – Applications for the 2004 scholarships by WNPS are on p. 5, due in January.

Watch for a new WNPS mailing address!!

The U.S. Postal Station at the University of Wyoming will be closing. The new WNPS mailing address will be announced in the next issue.

Announcing:
CELEBRATING WILDFLOWERS
Draper Museum of Natural History
Cody, WY in early June 2004

Talks and fieldtrips will be offered, in the setting of the Draper Natural History Museum and the Shoshone National Forest. Co-sponsors include the Wyoming Native Plant Society, Shoshone Natl. Forest, U.S. Forest Service – Region 2, and the Buffalo Bill Historic Center – Draper Museum of Natural History. Head organizer: Kent Houston.

New Member: Please welcome the following new WNPS members: Cissi Buckert (Newcastle), Jeanette & Kurt Flaig (Laramie), Stephen Helms (Driggs, ID), Carrie Jacobson (Pierre, SD), Grace Kastel (Hot Springs, SD), Andrew King (Basin), Bradley Loren Marlow (Riverton), Elise Pendall & Gary Bolton (Laramie), and Brian Reif (Laramie).

Wyoming Native Plant Society
PO Box 3452, Laramie, WY 82071

President: Jennifer Whipple (Mammoth) - 344-7988
Vice President: Jean Daly (Sheridan) - 674-9728
Sec.-Treasurer: Drew Arnold (Laramie) - 742-7079
Board Members: Jim Glennon (Rock Springs) - 352-0336; Kent Houston (Cody)– 527-6572.

Newsletter Editor: Bonnie Heidel (Laramie; email: bheidel@uwyo.edu)
Teton Chapter: PO Box 82, Wilson, WY 83014 (Joan Lucas, Treasurer)
Bighorn Native Plant Society: PO Box 21, Big Horn, WY 82833 (Jean Daly, Treasurer)

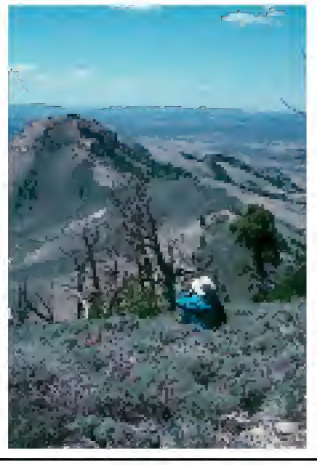
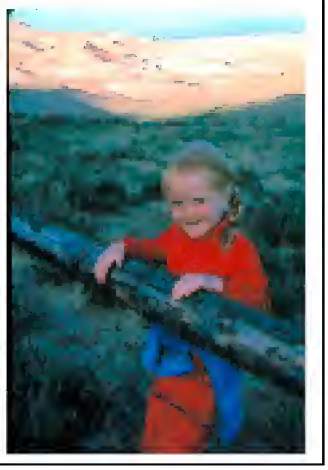
Treasurer's Report: Treasurer's Report: Balance as of October 6: General Fund: $865.15; Student Scholarship Fund: $556.00; Total funds: $1421.15.

Contributors to this issue: Joy Handley (JH), Bonnie Heidel (BH), Mary Jennings (MJ), and Stuart Markow (SM).

The next deadline for newsletter submissions is December 1 – announcements, articles, suggestions, and any spare humor are welcome.

Fall Conference Cancellation: The Conference on plant conservation among energy developments, originally planned for Pinedale this fall, was cancelled. Castilleja will carry some of the conference topics – see p. 7.

Annual fieldtrip glimpses from the Jack Morrow Hills (left to right): Laura Browning (Lander) in the Killpecker Dunes on her first WNPS fieldtrip, Joan Lucas (Wilson) and her new rig at Oregon Buttes, George Jones (Laramie) atop Oregon Buttes, and Tighe Jones (Laramie) returning to camp at Bush Rim after a long day in the field.

REPORT OF ANNUAL MEETING, 31 May – 1 June 2003

A stirring crew of Wyoming Native Plant Society members ushered in summer exploring the Jack Morrow Hills on 31 May.

First, a brief WNPS membership meeting was held that recapped the Board meeting held the previous evening, and discussed fieldtrip ideas submitted to date. People who had not submitted their ballots brought them, and elections closed. With all due respect to the excellent fieldtrip suggestions, members decided on a trial change to the fieldtrip selection process. Rather than deciding the destination for fieldtrips a year in advance by the attendees of the current fieldtrip, the 2004 fieldtrip will be decided by "vote" of the full membership concurrent with renewals and election ballots, all coming due at the start of the calendar year (see WNPS News). A fieldtrip survey plus overview of the past annual fieldtrips will be in the next newsletter issue.

Killpecker Dunes

Our multi-colored caravan set off for the Killpecker Dunes, arriving for a giant sandbox experience for the youngest members of the entourage. We traversed the dune chronosequence from pioneer plant communities of sand dock (*Rumex venosus*), lemon scurfpea (*Psoralea lanceolata*) and Indian ricegras (*Achnatherum hymenoides*), to stabilized communities of rabbitbrush (*Chrsothamnus viscidiflorus, C. nauseosus*), and heard George Jones, Wyoming Natural Diversity Database ecologist, describe nearby dormant dunes stabilized by giants among Basin big sagebrush (*Artemisia tridentata* var. *tridentata*). The Killpecker Dunes originated from sand deposited in Lake Gosiute, and were most active in Pre-Pinedale interglacial intervals (prior to 20,000 years ago; Ahlbrandt 1973).

Frieghter Gap

We headed in quest of the Large-fruited bladderpod (*Lesquerella macrocarpa*), exploring the brightly-colored cushion plant array near Freighter Gap, without a silicle in sight. After lunch, brakes slamming, our quarry was spotted on the drive out. This species was first discovered by Aven Nelson in June 1900, collected in 1901 by USDA researchers, and described by E.B. Payson in 1921. It was not relocated until 1977 by Robert Dorn. It has been the subject of research into its commercial-grade oils, as mentioned in *Castilleja* in 1994. It is only known from the Great Divide Basin and Green River Basin, WY. We saw it in flower and early fruit. The habitat and growth form of *Lesquerella macrocarpa* are nearly like those of a *Physaria*, but with characters of the silicles that show it does belong in the *Lesquerella* genus (Rollins and Shaw 1973).

Bush Rim

A bona fide shortcut got us to Bush Rim *early* in the afternoon to hike the rim, slopes and associated wetlands. We searched once again for the Large-fruited bladderpod in the vicinity of the Bush Ranch where Aven Nelson first discovered it. We found one plant in 20 minutes of searching.

(cont. p. 4)

Annual Meeting Report, cont. from p.3
Later, a camp site sheltered by aspen accommodated the camping contingent, and served as jumping-off point for exploring a nearby exclosure later in the waning light.

Oregon Buttes

Sunday was as clear and calm as the day before. Tour-goers decided to climb Oregon Buttes. Expansive views along the southern and western rim overlooked the Jack Morrow Hills we had visited the previous day. This landmark in western history was a fitting finale before setting off in different homeward directions. Thank you to all who joined this year's adventures!!!! BH

Literature Cited

Ahlbrandt, T.S. 1973. Sand dunes, geomorhphology and geology, Killpecker Creek Area, Northern Sweetwater County, Wyoming. PhD Thesis. Department of Geology, University of Wyoming, Laramie.

Payson, E.B. 1921. Monograph of the genus *Lesquerella*. Annals of the Missouri Botanical Garden 8:181.

Rollins, R.C. and E.A. Shaw. 1973. The Genus *Lesquerella* (Cruciferae) In North America. Harvard Univ. Press, Cambridge, MA.

A NEW VIEW of Wyoming

Have you ever wondered about using satellite imagery in your work? Then take a look at WyomingView, a state clearinghouse and consortium on remote sensing coordinated by the Wyoming Geographic Information Science Center (WyGISC) at the University of Wyoming (URL: http://www.wygisc.uwyo.edu/wyview/)

WyomingView is aimed at expanding remote sensing education and research activities in the state of Wyoming. WyomingView is part of the AmericaView (AV) program, supported by the USGS EROS Data Center (EDC), and works with organizations that require near-real time satellite data over high-speed computer networks. Resources include:

- Enhanced Thematic Mapper 7 (ETM7)
- Moderate Resolution Imaging Spectroradiometer (MODIS)
- Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)
- NAPP and DOQQ (Available through WYGISC's Digital Orthophoto Browser)

The primary goal for the WyomingView program is to build a remote sensing consortium in Wyoming by visiting and surveying potential users of remotely sensed data in the state and opportunities in the state both for potential users of remotely sensed data and for students interested in working in this growing field. A third goal for WyomingView program is the development of pilot projects in cooperation with the USGS and other funding agencies and systematically assessing needs, capabilities and interest; and then organizing a consortium.
A second goal for the WyomingView program is to increase the number and types of educational Wyoming end-users to demonstrate the benefits that can come from effectively using remotely sensed data.

The Field Botanist using GIS

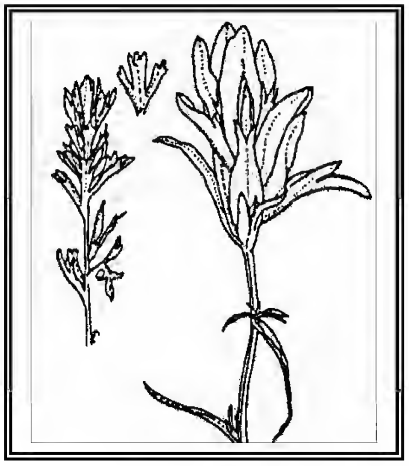
(Almost completely borrowed from Lewis Carroll's "The hunting of the Snark")

The Botanist himself they all praised to the skies--
Such a carriage, such ease and such grace!
Such solemnity, too! One could see he was wise,
The moment one looked in his face!

He had bought a large map representing the sea,
Without the least vestige of land:
And the crew were much pleased when they found it to be
A map they could all understand.

"What's the good of Mercator's North Poles and Equators,
Tropics, Zones, and Meridian Lines?"
So the Botanist would cry: and the crew would reply
"They are merely conventional signs!

"Other maps are such shapes, with their islands and capes!
But we've got our brave Plantman to thank:
(So the crew would protest) "that he's bought us the best--
A perfect and absolute blank!" JH



Wyoming Native Plant Society
2004 Botany Research Scholarship

Applications are due by 25 January 2004.

Scholarships will be awarded in March, 2004.

The Wyoming Native Plant Society was established in 1981 for the purpose of encouraging appreciation and knowledge of the native flora of Wyoming. Towards this end, the Society has promoted research on native plants and habitats in Wyoming through its annual scholarship program. One to three scholarships in the amounts of $300-500 are awarded each year to undergraduate, or graduate students conducting research in Wyoming. Projects may address any aspect of botany, including taxonomy, ecology, floristics, plant geography, range science, physiology, or mycology.

2004 Student Scholarship Application

Name _____

Address_____

School _____

Department Advisor _____

Project Title _____

Objectives of Research _____

_____

_____

_____

_____

Summary of Project: On a separate page(s), please present the proposed methods of the research project, and a brief summary of the value of the project.

Please send completed applications to:
Wyoming Native Plant Society
PO Box 3452,
Laramie, WY 82071

Deadline for applications: 25 January 2004.

National Wildlife Refuge Centennial Celebration

The National Elk Refuge in Jackson, WY offered a new feeding program earlier this month with birthday cake on the menu. This event and other centennial celebrations of the U.S. National Wildlife Refuge system mark the 100-year anniversary since Theodore Roosevelt signed the Executive Order on March 14, 1903 withdrawing Pelican Island (FL) as the first "National Bird Reservation."

Pelicans, pintails and elk are the centerpieces of the national wildlife system, but the original vegetation and flora are among the underpinnings of their establishment, and in many cases contribute to their biological significance. The seven national wildlife refuges in Wyoming have botanists and ecologists stopping over along with big game and waterfowl.

Most botanical stopovers are chronicled only in specimen labels, with the exception of select studies. More recently, national wildlife refuges have also been considered in surveys for Threatened and Endangered plants (Welsh 1979, Fertig 2000) as well as for Wyoming plant species of special concern (Fertig 1998). While there are no known federally listed plant species on the refuge system in Wyoming, there are at least 20 Wyoming plant species of special concern known from refuges, some representing thriving populations and others being historic records of species that have not been seen for many decades in the state (species list available thru WYNDD; wndd@uwyo.edu). BH

The seven refuges in Wyoming and their offices are:

- National Elk Refuge, 532 North Cache St., P.O. Box 510, Jackson, WY 83001; (307)-733-9212
- Seedskadee National Wildlife Refuge, P.O. Box 700 Green River, Wyoming 82935; (307) 875-2187
- Cokeville Meadows NWR (contact: Seedskadee NWR)
- Pathfinder NWR (contact: Arapaho NWR, P.O. Box 457, Walden, CO 80480; (970) 723-8202
- Bamsforth NWR (contact: Arapaho NWR)
- Hutton Lake NWR (contact: Arapaho NWR)
- Mortenson Lake NWR (contact: Arapaho NWR)

Literature Cited

Fertig, W. 1998. Plant species of special concern and vascular plant flora of the National Elk Refuge. Report for US Fish and Wildlife Service, WYNDD, Laramie.

Fertig, W. 2000. Survey for Ute ladies tresses (*Spiranthes diluvialis*) along the Sweetwater River in Pathfinder National Wildlife Refuge. Report for Bureau of Reclamation, WYND. Laramie.

Welsh, S.L. 1979. Inventory of potential Endangered and Threatened plants on Seedskadee National Wildlife Refuge. Report for U.S. Fish and Wildlife Service. BYU, Salt Lake City.

National wildlife refuges in Wyoming

USDA PLANTS Database Quadruples Image Library

The USDA PLANTS Database, posted at (http://plants.usda.gov), has added publication-quality images and vastly increased its image library. PLANTS has added all the drawings from Britton and Brown's classic Illustrated *Flora of the Northern States and Canada*, as well as the grass drawings from another classic long out of print, *Hitchcock's Manual of the Grasses of the United States*. With the addition of the four NRCS regional wetland floras and significant contributions from several photographers, PLANTS photos and drawings now number nearly 16,000. PLANTS welcomes image contributions.

To learn more, see: http://plants.usda.gov/photo_submittal.html.

Laying Foundation for New Botanic Garden

The Great Plains Native Plant Society, based in Hot Springs, SD launched reconstruction of the log building which will become a new botanic garden visitors center. The foundation is being poured this fall.

A challenge grant program is underway. For more information, contact: The Great Plains Native Plant Society; 605-745-3397; cascade@gwtc.net.

Plant protection under the Endangered Species Act

By Mary Jennings, FWS, Wyoming Field Office

(Editor's Note: This article provides insights into one of the topics originally planned for a conference this fall in Pinedale. Mary Jennings is endangered species biologist for the Wyoming Field Office of the U.S. Fish and Wildlife Service in Cheyenne, and has had the most experience with Endangered Species Act listing petitions, critical habitat designations, and recovery work involving plant species in the state.)

The Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. 1531 *et. seq.*) differs in its approach toward plants and animals. For animals, including fish, wildlife, and invertebrates, the primary protections outlined in Section 9 of the Act not only prohibit the import, export, sell, and engage in interstate commerce, but also prohibit "take". Take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is further defined by the U.S. Fish and Wildlife Service (FWS) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by FWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. (50 CFR 17.3) Section 9 prohibitions apply not only to Federal agencies, but to private parties as well.

The other part of ESA that offers protection is Section 7. It instructs Federal agencies to use their authorities to conserve listed species and to consult with the FWS to ensure that actions they take, fund, or authorize will not result in jeopardy to the survival and recovery of a listed species or adversely modify its critical habitat. This applies to all Federal actions, even when an action is on split estate (BLM owns the minerals but the surface is private).

Under Section 7, the Federal agency must evaluate the effects (direct, indirect, and cumulative) of its action to determine whether the action may affect a listed species or its critical habitat. If the answer is yes, then they further evaluate whether that effect will be adverse or not. If the action will be entirely beneficial, insignificant, or discountable, they usually contact FWS with all appropriate information and ask for concurrence with their determination that the action will not adversely affect the species. If the action is determined to have an adverse effect, they request formal consultation with FWS.

During this process, FWS provides a biological opinion with determination whether the adverse effect jeopardizes species' viability and recovery actions, or adversely modifies critical habitat. For animals, FWS can include an incidental take statement that basically authorizes a level of take below critical levels, providing terms and conditions that must be implemented to minimize the take. For plants, since take is not prohibited under ESA Section 9, there are no such terms and conditions. However, conservation recommendations are routinely included with biological opinions involving plants that the agencies often elect to implement. If the biological opinion determines that the effect may jeopardize the future survival and recovery of the species or adversely modify its critical habitat, then FWS must develop a Reasonable and Prudent Alternative to the proposed action that will allow the agency to do what they need to do while not jeopardizing the species or adversely modifying the critical habitat.

Protection under the ESA as it originally and currently applies to Endangered and Threatened plants, is presented below:

ESA Plant Protection Levels Past and Present

	Endangered	**Threatened**
Pre-1988 protection under the ESA	- Illegal to collect (remove and reduce to possession) on Federal lands - Illegal to import, export, sell, engage in interstate commerce, etc. (these restrictions are in the ESA as well as regulations at 50 CFR 17.61)	The protection for endangered species was extended to threatened plants by regulation (50 CFR 17.71 referencing 17.61)
Current protection under the ESA with 1988 amendments	ESA amended to prohibit: - Damage or destruction on Federal land - Damage or destruction on non-Federal land when in violation of state law or regulation (these changes were in the law only, not in regulation)	There is no regulation extending the 1988 amendment changes to threatened plants

More complete information on the ESA is provided on the FWS website: http://endangered.fws.gov/ .

Botanist's Bookshelf

Northwest Penstemons

by Dee Strickler

The genus *Penstemon*, with some 250-275 species worldwide, is one of the largest genera of plants represented in the northwestern United States. One might expect a group this big to pose some difficulty with identification and, sure enough, it does. While some species jump out as quite distinctive, others separate on subtle and, sometimes, inconsistent features which are difficult to effectively describe. Hybridization further muddies the water. People who spend most of their free time working with this group generally express frustration with the complexities of distinguishing the different species and varieties, and wringing their hands in despair, cry out for "a better way".

Thankfully, Dee Strickler has shouldered the task of enlightening the masses. *Northwest Penstemons* is the book to turn to for help in resolving your ID issues with *Penstemons*, IF you live in Washington, Oregon, Idaho, or Montana. You can also do well in northwestern Wyoming, as this work covers nearly all of the species known to Teton County and Yellowstone Park.

Northwest Penstemons provides just about all of the information that is practical to include in any publication of field-going size. In it, Strickler begins with a description of the genus, and an overview of basic *Penstemon* morphology. This introduction is followed by a key to species. In this key, Strickler conveniently groups species into four subgenera (in one of a number of competing classification schemes). Varieties are distinguished within the same key and, for all taxa, the user is referred to the page on which each taxon is fully described.

The descriptive pages themselves are remarkable, with complete coverage of each species, including full morphological descriptions, synonymy, line drawings, ranges, distribution maps, habitat descriptions, and one or more color photographs. Also included are those features distinguishing varieties, in a re-emphasis of those included in the key.

Finally, Strickler identifies numerous problematic situations in which individual specimens stubbornly resist identification. For example, he points out the vexing condition in which *P. wilcoxii* hybridizes extensively with *P. albertinus* (and probably others), producing intermediate morphs that cannot be confidently assigned to either species.

Such rampant hybridization is all too common in the genus. Fortunately efforts are now underway to correct the situation. Vigilant lawmakers on a mission to control reproductive behavior are introducing legislation to stem what they decry as "the outrageous promiscuity and indiscriminate crossbreeding that permeates this degenerate culture". We'll sleep better knowing that these folks are hard at work.

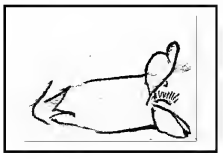
Shortcomings of the book are few and minor. Some of the reported ranges are a bit off, as seen, for example, in *Nothochelone nemorosa* (formerly *Penstemon nemorosus*). Strickler reports this species as occurring on "Vancouver Island, in western Washington and Oregon, to northwestern California, from the Cascades to the coast". In fact, the species is also documented for the Blue Mountains in northeastern Oregon, although it is uncommon and scattered. Another such oversight is seen in his reporting of *P. pennellianus*. This one he has listed for southeastern Washington, and just barely making it into Wallowa County in northeastern Oregon. However, it is known to occur as far south as northern Union County, albeit not in great abundance. Perhaps the omissions were due to lack of available collections from these areas.

Another problem is one that Strickler himself admits to. In a few cases, the photographs do not show true color. Because color film is more sensitive to red than to blue, lavender flowers tend to appear pink in the photos.

All told, *Northwest Penstemons* includes 79 *Penstemon* species (22 of which occur in Wyoming). With many of these divided into multiple varieties, plus an additional species which was formerly included in the genus, total taxa equals 108 (do the math). No matter how you slice it, the book is an impressive piece of work, reflecting a tremendous amount of research.

For those lucky enough to botanize the Pacific Northwest and northwestern Wyoming, this book is a must-have. Even if you are not so fortunate but wish to familiarize yourself with the genus, you can hardly go wrong perusing the introductory material. Regardless of minor flaws (inherent in any plant guide), Dr. Strickler has provided a great service to those trying to get a handle on this difficult group. His book may not resolve all of your problems with *Penstemon*, but will help with many of them. And, hey! If *Penstemon* ID was easy, anyone could do it, and there would be no need for a book of this kind!

SM



Available through Globe Pequot Press. (203) 458-4500
http://www.globepequot.com

Links of Interest to *Penstemaniacs*:
American Penstemon Society:
http://www.ishs.org/sci/icralist/12.htm
North American Rock Garden Soc.:
http://www.nargs.org/

2003-04 East Slope Workshop Schedule open to WNPS

The Colorado Native Plant Society (CNPS) offers 1-day workshops (9:00 am-3:00 pm) for its 20th consecutive year, open to members of native plant societies in adjoining states at CNPS member rates. The goal is to demystify plant identification and enhance enjoyment and understanding of Colorado's native flora.

Registration must be completed in advance and payment of $12 made by the time of the workshop. The CNPS newsletter is received by the WNPS newsletter editor, so if interested, get a copy of the registration form from Bonnie Heidel (bheidel@uwyo.edu; 766-3020). Registrations via phone and email are not accepted. A separate schedule of West Slope workshops has yet to be announced.

WORKSHOP TOPIC	LEADER	DATES	LOCATION
Mysterious Moonworts	Peter Root	November 8, 9	Denver Botanic Gardens
Beginner Archaeobotany	Linda Cummings	December 6, 7	Paleo Research Institute, Golden
Asteraceae Tribes	David Buckner	January 10,11	Foothills Nature Center, Boulder
Sedges of Colorado	Nan Lederer	Feb 7, 8	Univ. of CO, Boulder
Native Orchids of Colorado	Charles Sheviak	March 20, 21	To be announced
Ferns and Fern Allies of Colorado	Tom Ranker	April 17, 18	Univ. of CO, Boulder
Gardening in Colorado	Tom Lemieux	May 22, 23	806 Brooklawn, Boulder

Osha on the Ag Horizon

Ligusticum porteri (osha) is a perennial plant that grows from southcentral Wyoming to northern Mexico and may be in danger of over-harvest. Its roots contain both antiviral and antibacterial properties. Greenhouse studies at the University of Wyoming, initiated in 2000 (see *Castilleja* Vol. 21[1]) sought to determine if *L. porteri* could be grown successfully from seeds, root cuttings, or vegetative crown cuttings. Seed was harvest from the wild in Fall 2000. Roots were collected in May 2001. Seed was given one of four treatments: no cold treatment; six weeks at 4.4° C; four weeks each; or 12 weeks at 4.4° C. Roots were divided into root and crown cuttings and were placed on a 21.1° C mist propagation bench. Results indicated that 12 weeks of stratification was beneficial for seed germination. Root cuttings were not successful. Propagation of vegetative crown cuttings was most successful with 90% rooting.

Ligusticum porteri
Photo from the Baca Institute of Ethnobotany
http://anthro.fortlewis.edu/ethnobotany/baca/Wildcrafting/osha.htm

A new USDA grant will enable the research team to expand their cultivation research to field trials. For further information, contact: Dr. Karen Panter, Department of Plant Sciences, University of Wyoming at (307) 766-5117; kpanter@uwyo.edu.

Flora of North America – One of Two Grass Volumes Now Available

Volume 25, Poaceae, Part II, is now available from Oxford University Press. It treats and illustrates over 700 species and covers the subfamilies Aristidoideae, Arundinoideae, Centothecoideae, Chloridoideae, Danthoinioideae, and Panicoideae. This item is available at the price of $120.00 plus shipping. The ISBN number is 0195167481 and orders may either be phoned in to Oxford University Press at 1-800-451-7556 or a purchase order faxed to 919/677-1303.

NYBG Offers Virtual Herbarium

The New York Botanical Garden Herbarium announces that its free software system, the Virtual Herbarium Express, is now available for download at http://www.nybg.org/bcsi/vh/. The program can serve as both a field and herbarium tool for small- to mid-sized herbaria, or as a starter system for a larger institution getting practice in collection management software application.

VH Express is designed in the Microsoft Access XP format and can run as a stand-alone application on a desktop or notebook computer. Collection information is entered in a simple data-entry form and stored in relational tables.

Users are welcome to modify the application to suit their own research needs, and are encouraged to contribute additional forms, reports, or alternative table structures to the online library. NYBG is willing to host as a separate catalog the data from those institutions that use VH Express but are not equipped to make their specimen data available in a searchable catalog.

(From: Flora of North America Newsletter 17(1))

Wyoming Native Plant Society
P.O. Box 3452
Laramie, WY 82071

The Wyoming Native Plant Society, established in 1981, is a non-profit organization dedicated to encouraging the appreciation and conservation of the native flora and plant communities of Wyoming. The Society promotes education and research on native plants of the state through its newsletter, field trips, and annual student scholarship award. Membership is open to individuals, families, or organizations with an interest in Wyoming's flora. Members receive *Castilleja*, the Society's quarterly newsletter, and may take part in all of the Society's programs and projects, including the annual meeting/field trip held each summer. Dues are $7.50 annually.

To join or renew, return this form to:

Wyoming Native Plant Society
PO Box 3452
Laramie, WY 82071

Name: _____

Address: _____

_____

___ $7.50 Regular Membership
___ $15.00 Scholarship Supporting Member
($7.50 goes to the annual scholarship fund)